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UNIVERSITY OF IDAHO
COLLEGE OF AGRICULTURE
EXTENSION DIVISION
E. J. IDDINGS
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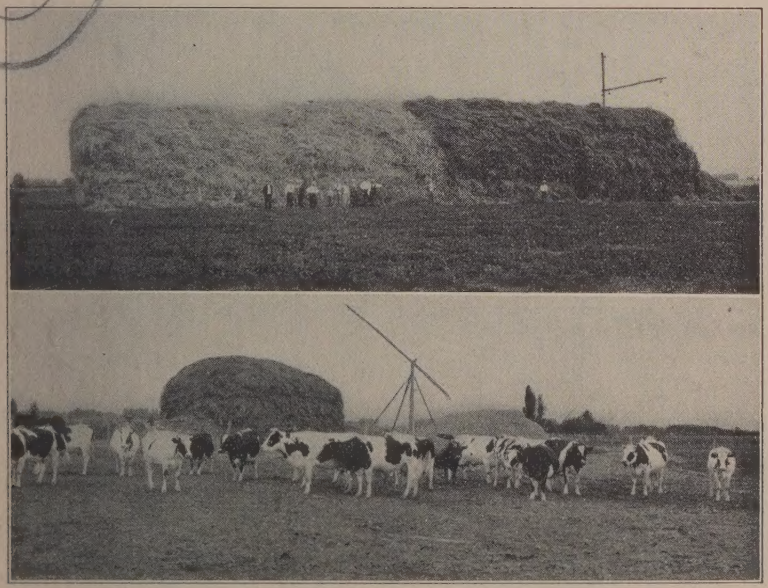
Suggestions for Profitable Dairying

By

D. L. FOURT *and* F. W. ATKESON



Idaho alfalfa hay and dairy cows are good business partners.

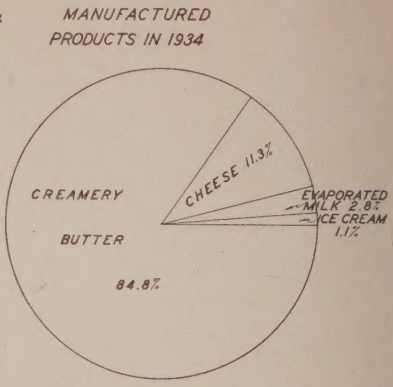
COOPERATIVE EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS OF THE STATE OF IDAHO UNIVERSITY OF IDAHO COLLEGE OF AGRICULTURE AND UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

DAIRY SECTION

Printed and distributed in furtherance of the purposes of the Cooperative Agricultural Extension Service provided for in Act of Congress May 8, 1914

How Idaho Uses Its Milk

PRODUCTION SINCE 1925



PRODUCTION INCREASE 1925 TO 1934 INCLUSIVE
STATE DEPT OF AGRICULTURE REPORTS

BUTTER ---------- 75.2%
CHEESE ---------- 10.9%
EVAPORATED MILK ---------- 17.5%
ICE CREAM ---------- 74.3%

PRODUCTION OF DAIRY PRODUCTS IN IDAHO
1925-1934

Year	Butter	Cheese	Evaporated Milk	Ice Cream	Casein	Dried Milk
1925	16,729,000 lbs.	7,423,000 lbs.	10,040,000 lbs.	381,580 gals.		
1926	20,238,000 "	8,103,000 "	9,367,000 "	373,781 "		
1927	21,288,000 "	7,528,000 "	11,302,000 "	464,000 "	598,000 lbs.	165,000 lbs.
1928	22,155,000 "	8,383,000 "	15,585,000 "	624,000 "	637,000 "	1,191,000 "
1929	24,174,000 "	7,921,000 "	18,284,000 "	692,000 "	971,000 "	2,435,000 "
1930	26,013,000 "	9,025,000 "	17,907,000 "	685,000 "	1,580,000 "	3,777,000 "
1931	28,601,756 "	6,241,460 "	14,555,736 "	562,776 "	1,313,240 "	3,848,000 "
1932	28,918,429 "	7,289,162 "	7,807,560 "	366,497 "	946,992 "	4,164,940 "
1933	29,756,352 "	7,384,577 "	12,098,681 "	368,247 "	1,121,473 "	6,419,809 "
1934	29,317,401 "	8,224,889 "	8,278,972 "	565,189 "	1,691,760 "	10,379,097 "

(Statistics from State Department of Agriculture Reports).

Quality Is Supreme

THE dairy industry has grown during the last 10 years into one of Idaho's most important industries. According to the reports of the Division of Crop and Livestock Estimates, United States Department of Agriculture, gross income from milk ranked first in three of the last five years (1930-1934) among all agricultural commodities in the State. Milk ranked first in 1930, 1931, 1932, and third in 1933, being surpassed by wheat and potatoes; and second in 1934, being surpassed by wheat. No other livestock enterprise approached the returns from milk in either farm value, gross income, or cash income.

Suggestions For Profitable Dairying

IDAHO exports large quantities and is in competition with other states for the sale of her surpluses. California, particularly Los Angeles, is the primary market for Idaho dairy products. The future expansion of the dairy industry in this state will depend upon whether or not Idaho can successfully compete with other states in economy of production and quality of products. Idaho has more favorable conditions, such as feed and climate, than many of the other states with larger dairy industries; and if the dairy farmers of Idaho will use efficient methods in production they will be able to compete successfully with other areas in cost of production. However, economical production is not all that is necessary. High quality products must be produced if Idaho dairymen are to find a ready market in competition with other sections.

Clean Milk and Cream Mean More Money

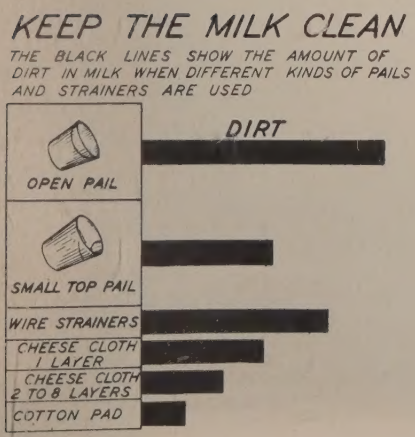
To produce it—have these conditions:

1. Clean barns
2. Clean cows
3. Clean milker
4. Sterile utensils
5. Small top milk pail
6. Milk cooled to 50° F.
7. Clean milk house

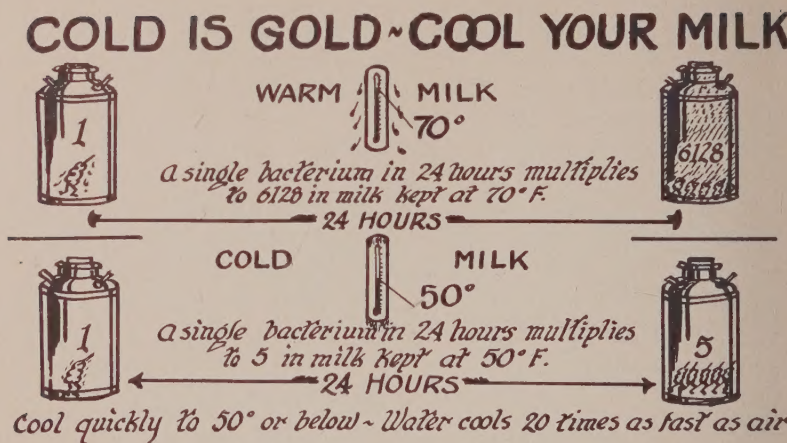
Don't reduce your profits with:

1. Dirty barns
2. Dirty cows
3. Dirty milker
4. Unsterile utensils
5. Open top pails
6. Improper cooling
7. Dirty milk house

Basis of Quality Is Clean Milk


KEEP THE MILK CLEAN
THE BLACK LINES SHOW THE AMOUNT OF DIRT IN MILK WHEN DIFFERENT KINDS OF PAILS AND STRAINERS ARE USED
DIRT
OPEN PAIL
SMALL TOP PAIL
WIRE STRAINERS
CHEESE CLOTH 1 LAYER
CHEESE CLOTH 2 TO 8 LAYERS
COTTON PAD

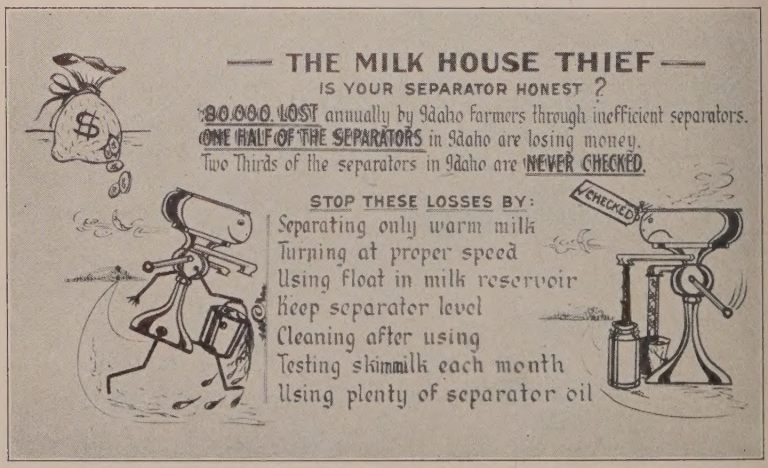
THE basis of high quality dairy products, whether it be butter, cheese, evaporated milk, or any other manufactured product, is clean milk. Clean cows, clean milkers, clean barns, small top milk pails, sterilized utensils, and an absorbent cotton strainer pad will get results.


COLD IS GOLD~COOL YOUR MILK
WARM MILK
70°
1
6128
A single bacterium in 24 hours multiplies to 6128 in milk kept at 70° F.
24 HOURS
COLD MILK
50°
1
5
A single bacterium in 24 hours multiplies to 5 in milk kept at 50° F.
24 HOURS
Cool quickly to 50° or below ~ Water cools 20 times as fast as air

QUICK cooling of milk keeps down bacterial development and makes possible better quality of manufactured products. Cool the milk to 50 degrees Fahrenheit within two hours. Utensils are some of the greatest sources of milk contamination. Sterile utensils are essential.[1]

Sterilize All Dairy Utensils

Eighty per cent of the bacteria in milk come from utensils.
Bacteria make milk sour.
Bacteria produce bad flavors.
Utensils are *not* clean unless sterilized.


THE MILK HOUSE THIEF
IS YOUR SEPARATOR HONEST ?
$80,000 LOST annually by Idaho farmers through inefficient separators.
ONE HALF OF THE SEPARATORS in Idaho are losing money.
Two Thirds of the separators in Idaho are NEVER CHECKED.
STOP THESE LOSSES BY:
Separating only warm milk
Turning at proper speed
Using float in milk reservoir
Keep separator level
Cleaning after using
Testing skimmilk each month
Using plenty of separator oil
CHECKED

[1]For further information on sterilizing dairy utensils write for Experiment Station Bulletin No. 183.

How to Sterilize

1. Steam for *one* minute.
2. Boil in water for *five* minutes.
3. Use electric, gas, gasoline, or kerosene sterilizing equipment.
4. Chemicals properly used.

A Tea Kettle of Hot Water:

1. Does not supply enough boiling water.
2. Cools too rapidly.
3. Gives false security.

Idaho's Nearest Feed Market Is the Dairy Cow

DAIRYING affords a most effective way of marketing the large surpluses of feed on Idaho's irrigated farms. Shipment of the feed crops themselves is almost prohibited by their bulk and by the expense of transportation. Forty cars of hay can be condensed into one car of butter. The value of a car of hay is less than $200, while the value of a car of butter is about $7,000. The freight rate on $1,000 worth of butter is only 4.5 per cent of the freight rate on the same value of hay. Idaho's distance from market demands condensed products of high unit value.

How to Feed for Profit

ECONOMICAL production requires the judicious selection of home-grown feeds in the proper mixtures and feeding in correct ratio to production. As long as alfalfa hay is fed in unlimited quantities without succulence, almost any mixture of home-grown grains is satisfactory because of the large amount of protein in the hay. The entire feeding problem is changed when beet pulp, potatoes, silage, etc., are added to the ration; when alfalfa hay is limited; or when non-legume hay is substituted. Such changes must be met by correcting the grain ration accordingly.

Suggested Rations

Select the one that meets specific conditions.

When the roughage consists of alfalfa alone, use the following mixtures:

Mixture No. 1

Barley or corn	300 lbs.
Wheat bran	100 lbs.

Mixture No. 2

Barley	400 lbs.
or	
Barley	200 lbs.
Wheat	200 lbs.
Oats	100 lbs.
Bran	100 lbs.

Mixture No. 3

Wheat	100 lbs.
Oats	100 lbs.
Barley	100 lbs.

Mixture No. 4

Corn and cob meal	200 lbs.
Oats	100 lbs.
Wheat bran	100 lbs.

Rate of Grain Feeding

Breed	Producing Daily	Amount Grain to Feed Daily
Holstein	Less than 28 lbs. (about 3⅓ gallons) milk	No grain
Holstein	More than 28 lbs. (about 3⅓ gallons) milk	0.4 lb. grain for each lb. milk over 28 lbs. or 3½ lbs. grain for each gal. milk over 3⅓ gals.
Jersey or Guernsey	Less than 18 lbs. (about 2 gallons) milk	No grain
Jersey or Guernsey	More than 18 lbs. (about 2 gallons) milk	0.5 lbs. grain for each lb. milk over 18 lbs. or 4⅓ lbs. grain for each gal. milk over 2 gals.

When only half of the roughage is alfalfa with silage, wet beet pulp, potatoes, or grain hay, pea or bean straw, use the following mixtures:

Mixture No. 1

Wheat or barley	100 lbs.
Oats	100 lbs.
Pea meal or bean meal	100 lbs.

Mixture No. 2

Wheat or barley	100 lbs.
Oats	100 lbs.
Pea meal	200 lbs.
Bran	100 lbs.

Mixture No. 3

Barley or wheat	100 lbs.
Oats	100 lbs.
Bran	100 lbs.
Cottonseed meal	50 lbs.

Mixture No. 4

Wheat	100 lbs.
Barley	100 lbs.
Oats	100 lbs.
Bran	100 lbs.
Pea meal or bean meal	100 lbs.

Rate of Grain Feeding

Breed	Producing Daily	Amount Grain to Feed Daily
Holstein	Less than 20 lbs. (about 2½ gallons) milk	No grain
Holstein	More than 20 lbs. (about 2½ gallons) milk	0.4 lb. grain for each lb. milk over 20 lbs. or 3½ lb. grain for each gal. milk over 2½ gals.
Jersey or Guernsey	Less than 12 lbs. (about 1½ gallons) milk	No grain
Jersey or Guernsey	More than 12 lbs. (about 1½ gallons) milk	0.5 lb. grain for each lb. milk over 12 lbs. or 4½ lb. grain for each gal. milk over 1½ gals.

When the roughage contains no alfalfa, but is all low in protein (such as grain hay, timothy, alfalfa chaff, and succulence) use the following mixtures:

Mixture No. 1

Wheat	100 lbs.
Bran	200 lbs.
Pea meal or bean meal	200 lbs.
Cottonseed meal	50 lbs.

Mixture No. 2

Wheat	100 lbs.
Oats	100 lbs.
Bran	100 lbs.
Cottonseed meal	100 lbs.

Mixture No. 3

Oats	100 lbs.
Bran	100 lbs.
Pea meal or bean meal	100 lbs.
Cottonseed meal	50 lbs.

Rate of Grain Feeding

Breed	Producing Daily	Amount Grain to Feed Daily
Holstein	Less than 16 lbs. (about 2 gallons) milk	No grain
Holstein	More than 16 lbs. (about 2 gallons) milk	0.4 lb. grain for each lb. milk over 16 lbs. or 3½ lbs. grain for each gal. milk over 2 gallons.
Jersey or Guernsey	Less than 10 lbs. (about 1¼ gallons) milk	No grain
Jersey or Guernsey	More than 10 lbs. (about 1¼ gallons) milk	0.6 lb. grain for each lb. milk over 10 lbs. or 5 lbs. grain for each gal. milk over 1¼ gallons.

Summer Suggestions

More milk per acre is produced from good pasture than any other feed.

Pasture grasses grow less in late summer — supplemental feeds are necessary.

Feed alfalfa hay once daily.

Heavy producing cows should have grain.

Feed minerals while cows are on pasture.

Tonics and Patent Medicines

Healthy cows do not need tonics.

Sick cows need specific medicines.

Tonic feeds cost too much and have little value.

Call a licensed veterinarian for sick cows.

Commercial Feeds

Ready-mixed feeds no better except they have greater variety.

Some mixed feeds good, some very poor.

Value of commercial feeds depends upon:

1. Digestible nutrient content
2. Cost per pound of nutrients
3. Kind and quality of ingredients
4. Adaptability of feed to community
5. Performance record

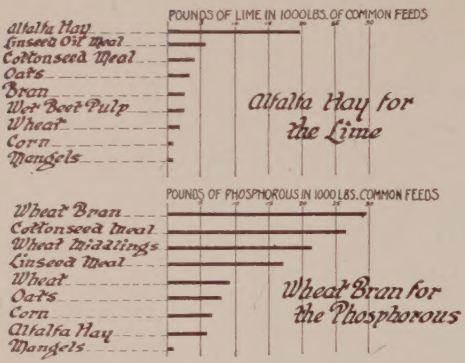
Proprietory mixed feeds are not recommended except for high producing cows.

By-Products

Dairy cows convert low value by-products into valuable products.

Convert:

Cull potatoes
Wet beet pulp
Beet molasses
Cannery wastes
Alfalfa and clover seed screenings
Apple pomace
Bean and pea by-products—into dairy products.



Minerals Have a Definite Function in Nutrition

They are not a cure-all for all troubles.

They are not a substitute for other feeds.

What and When Minerals Are Needed

Salt, iodine, calcium (lime), and phosphorous are minerals likely to be deficient.

Cows should have free access to fine dairy salt.

Iodine prevents goitre in calves. Feed iodized salt regularly instead of common salt or feed a solution of 15 grains of potassium iodine in one ounce of water on grain once each week during last three months of pregnancy.

Alfalfa hay usually furnishes sufficient calcium.

Wheat bran is a good source of phosphorous.

Low producing cows probably do not need minerals unless they have depraved appetites indicated by eating bones, dirt, etc.

High producing cows may need minerals.

In southern Idaho phosphorus is more often deficient than calcium.

In northern Idaho both calcium and phosphorous are likely to be deficient, especially when the supply of alfalfa hay is limited.

Commercial Mineral Mixtures

Usually cost too much.

Often unjustifiable claims are made for them.

Sometimes contain unessential ingredients.

May not be adapted to region.

No better than cheaper home mixture.

Suggested Mineral Feeds

Mixture No. 1

200 lbs. sterilized bone flour or meal, or spent bone-black.

100 lbs. salt.

Mixture No. 2

100 lbs. sterilized bone-meal

100 lbs. finely powdered limestone (non-magnesian)

100 lbs. salt
(1 or 2 lbs. iodized calcium is desirable)

Mix and feed as 3 per cent of the grain mixture. Also keep before animals at all times.

Good Pasture Supplies Cheapest Dairy Feed

GOOD pastures are the foundation of successful dairying. When one-half of the year's feed supply is pasture, only one-fifth of the year's feed cost is pasture. Average yearly feed cost per pound butterfat is 20 cents. Feed cost while on pasture is 8 cents per pound, or less than half the yearly average cost.

Land producing good pasture, utilized by dairy cows, will return as much income per acre as from most other crops at less overhead and harvesting costs. Just open the gate and let the cows do the harvesting. Pasture is the only crop that can be harvested daily during a six months' period. Too often rough untillable land is used for pasture, resulting in a shortage of feed during the summer months.

Pasture is nature's feed, and supplies a palatable nutritious food that contains essential vitamins and food elements.

Pasture Management

Proper pasture management is one of the most neglected practices among dairymen in the irrigated sections of southern Idaho. Lack of proper management of pastures results in reduced production and greatly increases the yearly feed costs.

Pasture mixtures listed below have proven satisfactory. Good pasture management in southern Idaho includes:

1. Frequent irrigation and removal of cattle while the land is being irrigated. Too many pastures suffer from lack of water.
2. A light covering of manure annually, and harrowing in the spring to scatter the droppings. Unscattered droppings cause rank, unpalatible patches of grass throughout the field. Much good pasture is wasted in these unpalatable patches.
3. Rotation of grazing. Divide the pasture into two or three fields and graze one field while the other is growing and being irrigated. This system greatly improves the quality of the pasture and increases the carrying capacity.
4. Delayed grazing until the grass gets a good start, and lack of overgrazing are important factors. Pasture grasses up to four inches in height are the most nutritious, furnish the greatest carrying capacity, and grow the most rapidly. Overgrazing tends to retard growth and greatly reduces the total nutrients available.

Cultivation has proven to be harmful to pastures. If weeds grow rank, clipping is desirable.

Reviving Old Pastures

Old pastures may be revived and carrying capacity increased by the methods suggested above for good pasture management. However, during the period when old pastures are being revived, additional temporary pastures should be provided. Sweet clover makes an excellent temporary pasture.

The following table summarizes two years' results in pasture management studies at the Caldwell Substation of the University of Idaho agricultural experiment station. Field I was 8 years old and Field IV was 13 years old when the experiment started. The pastures were originally mixtures, but had been abused in so many ways that only bluegrass remained. The cows used in this experiment averaged a little less than one pound of butterfat per day.

UNIVERSITY OF IDAHO CALDWELL SUBSTATION EXPERIMENTS
(Old Bluegrass Pastures)

Treatment	FIELD I				FIELD IV			
	Light Irrigation	Light Irrigation and Cultivation	Proper Irrigation	Proper Irrigation and Cultivation	Light Irrigation	Light Irrigation and Manuring	Proper Irrigation	Proper Irrigation and Manuring
Daily Carrying Capacity (cows)	1.19	1.02	1.42	1.39	1.15	1.45	1.35	1.71
Season Milk Production (pounds)	5,289.6	4,405.6	6,151.1	5,738.3	4,709.3	6,057.8	5,731.9	7,158.6

Cultivation did not pay; in fact, it reduced the returns. Top dressing of manure with light irrigation more than equaled proper irrigation wtihout manure. Manure and proper irrigation gave best returns. When milk production per acre can be increased 52 per cent it pays to study pasture management.

Pasture is Nature's Cow Tonic

1. It helps prevent breeding troubles.
2. It helps prevent mineral deficiency.
3. It increases assimilation of mineral feeds.
4. It furnishes essential vitamins.
5. It helps correct winter feeding mistakes.
6. It stimulates milk flow.
7. It is ideal feed before the cow freshens.

Southern Idaho Mixtures

Mixture No. 1

Ladino clover	4 pounds
Orchard grass	4 pounds
Meadow fescue	4 pounds
Total per acre	12 pounds

Mixture No. 2

Orchard grass	6 pounds
Brome grass	4 pounds
Tall or meadow fescue	8 pounds
Alsike 2 lbs. or red clover	4 pounds
Total per acre	22 pounds

Northern Idaho Mixtures

Mixture No. 1

Orchard grass	1 part by weight
Meadow fescue	1 part by weight
Brome	1 part by weight

Rate of seeding—15 to 20 pounds.

Mixture No. 2

Sweet clover, on high lands.
Rate of seeding—15 pounds.

Mixture No. 3

Reed's canary grass, on low lands.
Rate of seeding—10 pounds.

No nurse crop.
Seed early.
Use grass seeder followed by harrow and roller.
Do not pasture first year until September—then only lightly.

Give the Calf a Chance

The Danger Age

What to Feed

First 3 to 4 days feed milk from dam. During first two weeks give 6 to 10 lbs. whole milk daily according to size and condition.

Third week—gradually substitute skim milk for whole milk. Give all hay and grain calf will consume.

Fourth week to 4 or 6 months—10 to 20 lbs. skim milk, according to age and supply of milk. Home-grown grain up to 2 lbs. daily. Legume hay or good pasture. Plenty of pure water and salt.

Six months to 2 years—legume hay, or good pasture. Two pounds home-grown grain daily. Plenty of pure water and salt.

Feed legume hay as a source of vitamin A as early as the calf will eat it.

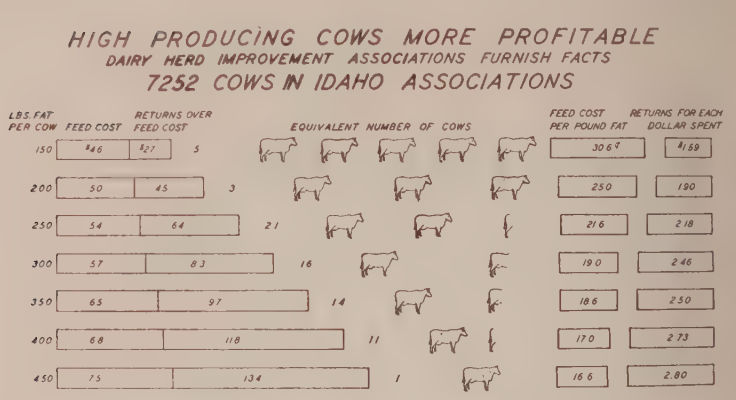
Six Months of Age Raised on Skim Milk, Grain, and Hay.

When Skim Milk Is Scarce Use Either of the Following:

1. Dried buttermilk: 1 part to 9 parts warm water.
2. Dried skim milk: 1 part to 9 parts warm water.
3. Semi-solid buttermilk: 1 part to 3 parts warm water. Any one of these is satisfactory when fed in the same manner as skim milk.
4. Feed 10 to 12 lbs. of skim milk to 70 days, plus plenty of good hay and grain.
5. Whole milk first 2 weeks; third week change to dried milk solution; fourth and fifth weeks dried milk solution; sixth week milk solution gradually removed. Encourage calves to eat grain as early as possible. Grain mixture should be one-third dried skim milk or dried buttermilk. Feed up to 4 pounds grain mixture daily. After sixth week no milk fed except in grain mixture.
6. Feed legume hay as early as the calf will eat it.

Well-Grown Yearling

Do	Don't
1. Wash and sterilize buckets	1. Use dirty buckets
2. Feed according to condition	2. Underfeed
3 Weigh or measure milk to each calf	3. Overfeed
4. Feed calves individually in stanchions	4. Feed as groups
5. Feed skim milk direct from separator without foam	5. Feed sour milk
6. Feed milk at uniform temperature	6. Feed cold milk
7. Keep pens clean well ventilated, and well lighted.	7. Use dirty pens
8. Treat sickness promptly	8. Neglect sickness


HIGH PRODUCING COWS MORE PROFITABLE
DAIRY HERD IMPROVEMENT ASSOCIATIONS FURNISH FACTS
7252 COWS IN IDAHO ASSOCIATIONS
LBS. FAT PER COW
FEED COST
RETURNS OVER FEED COST
EQUIVALENT NUMBER OF COWS
FEED COST PER POUND FAT
RETURNS FOR EACH DOLLAR SPENT
150 $46 $27 5 30.6¢ $1.59
200 50 45 3 25.0 1.90
250 54 64 21 21.6 2.18
300 57 83 16 19.0 2.46
350 65 97 14 18.6 2.50
400 68 118 11 17.0 2.73
450 73 134 1 16.6 2.80

Do Your Cows Produce 300 Pounds of Fat Each?

	Milk	Fat
Average production of all cows in Idaho	5,280	209
Average production of all cows tested in Dairy Herd Improvement associations in Idaho	8,111	334
Superiority of association cows	2,711	118

Information From These Associations Makes Possible:

Finding and eliminating low producing, unprofitable cows.

Determining the value of bulls and saving the ones with merit.

Stimulating improved methods of feeding and management.

Developing greater interest in dairying.

Checking inefficient separators.

Determining and developing heifers from the best cows.

Dairy Herd Improvement Associations are available to every dairyman.

See your Extension Agent.

Which Is the Best Herd?

22 cows, each producing 200 lbs. fat, returning $1000 over feed cost
or
12 cows, each producing 300 lbs. fat, returning $1000 over feed cost
or
9 cows, each producing 400 lbs. fat, returning $1000 over feed cost

Answer—9 cows, each producing 400 lbs. fat yearly.

Why?

Each herd returns $1000 over feed cost.

But

1. The 22 cow herd produced 800 lbs. fat, 22 per cent more than either of the other herds, *which tends to build a surplus and depress prices.*
2. The 22 cow herd required 38 per cent more feed than the 12 cow herd and 58 per cent more than the 9 cow herd.
3. The 22 cow herd required more time and labor and greater expenses in shelter and taxes than either of the other herds.
4. The 12 cow herd produced butterfat at a feed cost of 24 per cent lower than the 22 cow herd.
5. The 9 cow herd produced butterfat at a feed cost 32 per cent lower than the 22 cow herd.

A Tale of Two Herds

Returns Over Feed Cost

STATE BANK
DAIRYTOWN, IDAHO
DATE July 1, 1928
PAY TO THE ORDER OF A. Lass AMT. $480.00
Four hundred eighty and no/100 DOLLARS
I. Paysem MGR.
COMMUNITY COOPERATIVE CR'Y

STATE BANK
DAIRYTOWN, IDAHO
DATE July 1, 1928
PAY TO THE ORDER OF I. Cullem Close AMT. $735.72
Seven hundred thirty-five and 72/100 DOLLARS
I. Paysem MGR.
COMMUNITY COOPERATIVE CR'Y

Why the Difference?

16 Cows	Not the size of herd	6 Cows
Grade Holsteins	Not the breed	Grade Holsteins
$52.53	Not feed cost per cow	$86.23
	It Was	
177.6 lbs.	Average production of fat	446.6 lbs.

NOTE: Actual Dairy Herd Improvement association records in the same community, the same year.

It Pays to Keep Records

Records Give Light—Why Work in the Dark?

I. Breeding records show:
   1. When to dry each cow and prepare her for next freshening.
   2. Sire and dam of each animal.
   3. Age of each animal.
   4. Shy breeding and sterility of each cow and the bull.

II. Production records show:
   1. Profit or loss from each cow.
   2. Amount to feed and when to change.
   3. Value of a sire through production of daughters.
   4. Sale value of a cow and her calves.

III. Registration, transfer, and pedigree records:
   1. Insure confidence in breeding.
   2. Increase sale value of cattle.
   3. Assist in selling and advertising.

Your Future Herd Depends on Your Present Bull

Would you buy a 1910 model auto? The scrub bull is as out of date as the one cylinder right-hand drive.

Think This Over

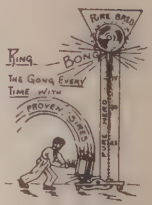
A survey of 295 Idaho dairy farms showed:
Less than one-half herd bulls registered.
One-fourth were *just scrubs*.
Only 43 per cent of the farmers owned bulls.

Here Are Your Facts

	Cost of Bulls	Income Per Cow	Income Per Herd
Herds with registered bulls	$95.42	$92.70	$954.81
Herds with unregistered bulls	44.68	79.57	819.67
Difference	$50.74	$13.13	$135.14

A saving of $50.74 in cost of bulls lost the dairymen $135.14 yearly on each of their herds of 10.3 cows.

Methods of Selecting a Herd Sire



The successful breeder and dairyman considers everything.

1. Proved sire—Production and type of a bull's daughters are the best guide.

2. Pedigree—A bull's transmitting ability is indicated by the production and type of his half sisters. Make certain of the top half of the pedigree by selecting a son of a proved sire. The lower half of the pedigree should be a succession of as many high record dams sired by proved sires as possible. Several successive generations of proved sires reduce the chances of a failure when selecting a bull by pedigree.

3. Type—Breed type is essential in breeding uniform cattle of highest value. Consider not only the type of a bull, but the type of his ancestors as well.

What This Good Bull Did
What Is He Worth?

The Bull
King Segis Matador Walker,
Owned by the University of Idaho

These seven daughters of King Segis Matador Walker averaged 23,192 pounds of milk and 782 pounds of fat at 5 years 6 months 3 days of age.

Improvement of His Daughters Over Their Dams

	Lbs. Milk	Lbs. Fat	Age
12 daughters	13,243	454	2 yrs. 5 mos. 17 days
12 dams	8,526	303	2 yrs. 4 mos. 15 days
Increase (pounds)	4,717	151	
Increase (per cent)	55.3	49.8	

151 lbs. fat × 30c = $45.30 yearly per cow. $45.30 × 12 daughters = $543.60 yearly. $543.60 × 5 milking years = $2,718.00 worth of fat from 12 cows in their lifetime due to a good bull.

Would You Buy a Dead Bull?

Many breeders wish they could buy back the bull that went to the butcher. 186 Idaho bulls have been proved, but 94, or 50.5 per cent, were dead before their value was determined. Good bulls are too valuable to be eaten.

You Never Know—Until the Bull is Proved

Of 186 bulls proved in Idaho
17.6 per cent decreased production an average of 71 lbs. fat per cow.
14.8 per cent just about held their own—3 lbs. fat increase.
67.6 per cent increased production an average of 77 lbs. fat.
Neighbors should exchange bulls and keep both alive until the daughters freshen.

Cooperative Bull Association Results

	Cost of Bull	No. Cows bred	Bull cost per man	Bull cost per cow	No. of years bulls used	Bull cost per cow per year
Before organization	$ 82.00	10.1	$82.00	$8.09	2	$4.05
After organization	213.00	33.4	35.00	6.36	6	1.06

What Idaho Farmers Have Done Through Bull Associations

Bought good bulls cooperatively.
Reduced bull costs $47 per man.
Reduced bull costs $3 per cow yearly.
Increased fat production 62 lbs. per cow the first cross.
Improved type of cows.
Cooperated in disease control.
Established definite breeding program.
Established systematic plan of proving bulls.
Standardized a breed in the community.

Management of Herd Sire

1. Give him exercise—it helps prevent sterility.
2. Furnish large pen at least 1800 square feet, or overhead or ground cable; safe-keeper breeding chute.
3. Do not use before one year old—limited service until two years. Allow cows only one service.
4. Do not let him run with cows. This overworks bull and is dangerous.
5. Use bell metal ring instead of light ring. Use Jensen halter where ring is torn out of nose.
   A 20-foot chain from horns or halter and through ring assists in catching bull and tends to quiet him.
6. Keep feet trimmed—lengthens usefulness of bull.
7. Feed
   —limited amount of hay, do not allow large barrel to develop.
   —limited amount of grain mixture of oats and wheat—keep in good flesh, but not fat.
   —salt—fresh water.
   —green feed or grass occasionally.

This is Daisy

172 lbs. fat

Her owner milked her 600 times in a year for $28.33 over feed cost

Not so good: But see her daughter

This is Daisy's Daughter

By a good registered bull—378 lbs. of fat

The same dairyman milked her 600 times also, but got $111.25 over feed costs—equal to four cows like her mother

A good bull made the difference

Why use scrubs?

This is Polly

470 lbs. fat

Polly's owner milked her 600 times in a year for $128.85 over feed costs

A good cow—but see her daughter by a bull association sire

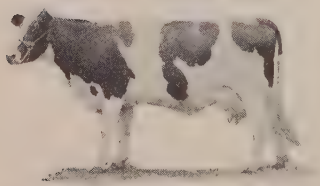
This is Polly's Daughter

691 lbs. fat

The same dairyman milked her 600 times and got $212.22 over feed costs

Good proved sires make a herd better

Don't let the profits backslide



The Most Expensive Cow in the World

The Scrub Purebred

In one year she produced only 5,538 lbs. milk and 170 lbs. fat

Her feed cost was $46.55

She made only $28.28 above feed cost

She did not pay expenses

Don't keep a scrub even though she is registered

A Great Loss to Dairying
A Stunted Cow

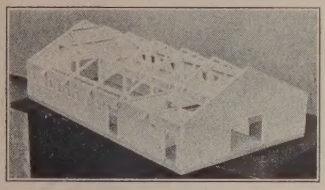
This heifer was freshened at 14 months

A boarder now

A low producer always

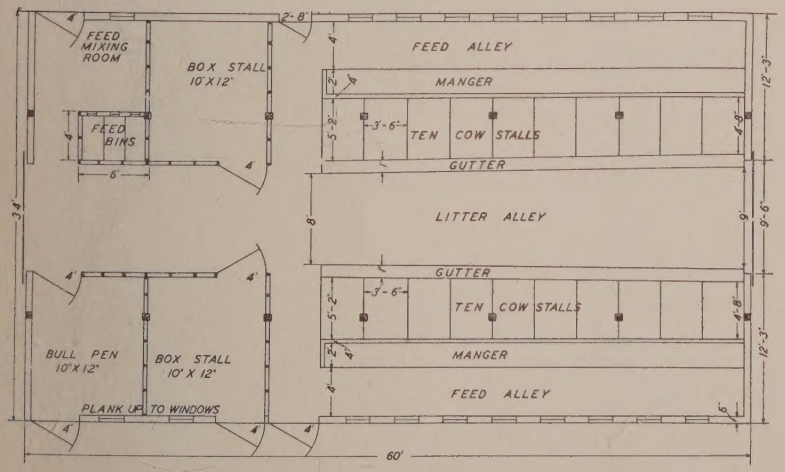
Breed heifers to freshen at 24 months or over

Types of Barns and Equipment Influence Overhead and Labor Requirements

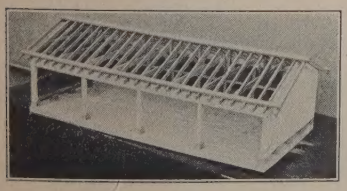


One Story Barn

LOW cost, good light, convenience, and minimum labor are some of the advantages of this milking barn. It is recommended to be used in connection with an open shed. The cows are turned in only for milking and grain feeding, then turned out into the open shed. The rigid wooden stanchion is cheap and quite satisfactory when the cows are in only at milking time. If cows are kept in at night, the model stall or modified model stall is more comfortable and keeps cows cleaner.

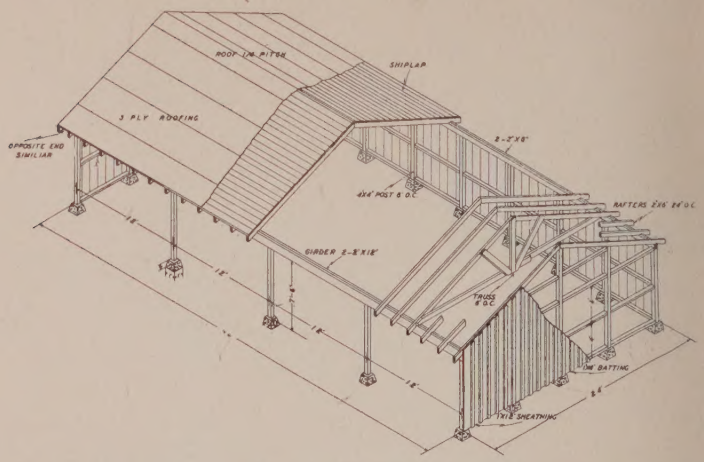


Plan for One Story Barn

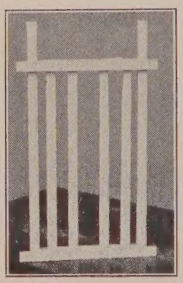


Shelter Shed

OPEN shed keeps cows comfortable, needs be bedded only two or three times a week, manure is preserved well, cows are clean, and hand labor is minimized. The essential thing in building a shelter shed is to have it low enough and deep enough (depth never less than 24 feet and in cold climates up to 30 feet; height not more than 7½ feet): 60 to 70 square feet per cow.

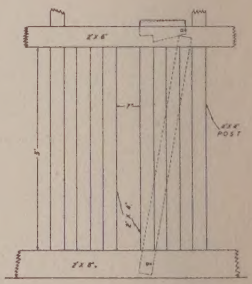


Plan for Shelter Shed



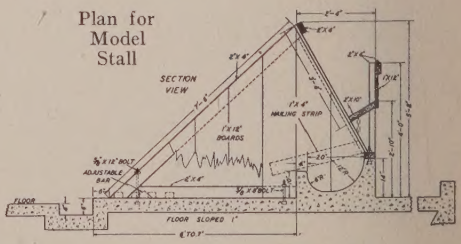
Rigid Stanchion

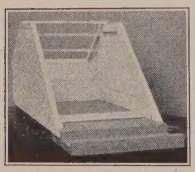
Plan for Rigid Stanchion



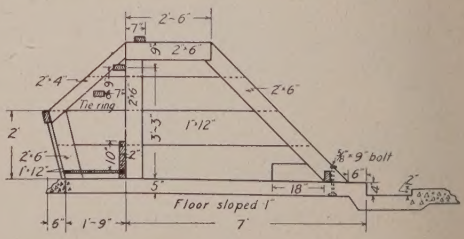
Model Stall

Plan for Model Stall





Modified Model Stall



Plan for Modified Model Stall

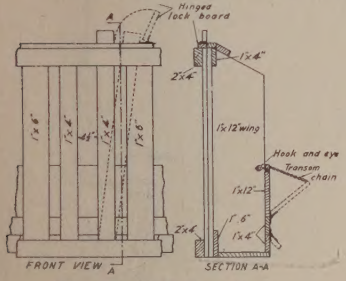
THE model stall and modified model stall are cheap, home-made, comfortable for the cows, require less bedding, keep cows clean, and reduce labor in cleaning barn and cows. Recommended where cows are kept in the barn and open shed system not used. The modified model stall does not obstruct the light in the barn as badly as the model stall and the manger is better suited to feeding chopped hay. However, the stall partitions are not strong as in the model stall.

Dimensions for the model stall and modified model stall must be varied according to the breed of cattle handled as follows:

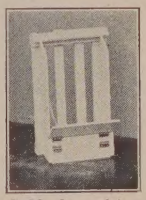
Holsteins—4 feet wide, 7 feet long, manger to gutter edge.

Guernseys or Ayrshires—3 feet 9 inches wide, 6 feet 6 inches long, manger to gutter edge.

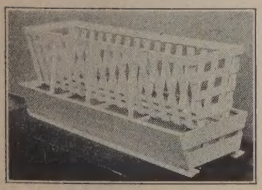
Jerseys—3 feet 6 inches wide, 6 feet long, manger to gutter edge.



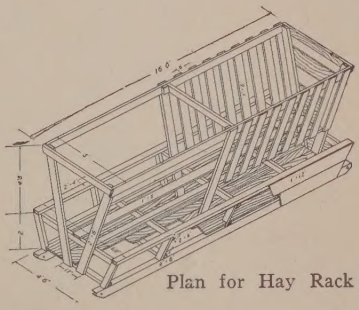
Plan for Calf Stanchion



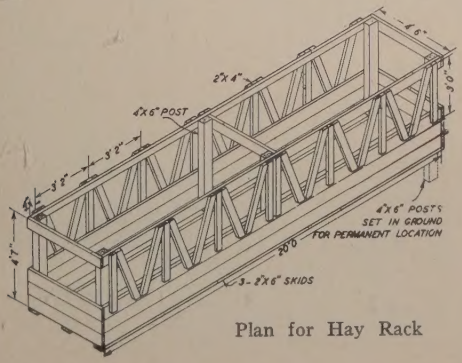
Calf Stanchion



Hay Rack



Plan for Hay Rack



Plan for Hay Rack

Publications on Dairying Available for Free Distribution

FOLLOWING is a list of the dairy publications of the Agricultural Experiment Station and the Agricultural Extension Division of the College of Agriculture, University of Idaho, available for distribution. Any of these publications may be obtained free upon request. Write to the Agricultural Experiment Station, Moscow, or Agricultural Extension Division, State House, Boise.

Agricultural Experiment Station Bulletins

144 *Cooperative Cream Pools in Idaho*
150 *Apple Pomace Silage for Milk Production*
152 *The Dairy Situation in Idaho* (Out of Print)
161 *Study of Bull Associations in Idaho*
163 *Dairy Herd Improvement Through the Use of Proved Bulls*
174 *Standardization of Milk with Skimmilk Powder for the Manufacture of Cheddar Cheese*
183 *Sterilizing Dairy Utensils on the Farm*
193 *Efficiency of Cream Stations in Cream Collection*
203 *Bin Method of Mixing Feed*
206 *Alfalfa Seed Screenings as a Feed for Dairy Cows*
207 *Pea Meal as a Feed for Dairy Cows*
212 *Effect of Various Phases in the Manufacture of Casein by the Natural Sour Method on Its Physical and Chemical Properties*
214 *Sweet Clover Silage as a Feed for Dairy Cows*
215 *Sunflower Silage for Milk Production*
216 *Potatoes as a Feed for Dairy Cows*

Agricultural Experiment Station Circulars

50 *Why Cream Tests Vary*
53 *Factory Tests for Dairy Products*
61 *Operation and Care of the Cream Separator*

Extension Division Bulletins

82 *Suggested Program and Instructions for Idaho 4-H Dairy Clubs*
83 *Dairy Products for Health and Economy*
102 *Suggestions for Profitable Dairying*

Extension Division Circulars

40 *Utilization of Home-Grown Grains and By-Product Feeds in Feeding Dairy Cattle*

Research Papers

76 *Inheritance of Hernia in a Family of Holstein-Friesian Cattle*
83 *Vitamin A Content of Pasture Plants*
88 *Influence of Different Starters on the Quality of Cheddar Cheese*
90 *Treatment for Mastitis with Ultraviolet Light, Formalin, Colloidal Carbon, and Autogenous Bacterins*
102 *Influence of Type of Ration and Plane of Production on Water Consumption of Dairy Cows*
105 *Laboratory Methods for the Detection of Milk from Cows Infected with Mastitis*
106 *Influence of Homogenization on the Curd Tension of Milk*
108 *Influence of Mastitis on the Curd Tension of Milk*
109 *Water Requirements for Dairy Calves*
110 *Effect of Bovine Digestion and Manure Storage on the Viability of Weed Seeds*
119 *A Feed-Grinding, Elevating, and Mixing Installation Utilizing a Hammer-Type Feed Mill and Blower Elevator*
132 *Inheritance of Wrytail in Jersey Cattle*
133 *Portable Elevator as a Labor Saving Device on the Dairy Farm*
136 *Vitamin A Content of Pasture Plants, II*
137 *Vitamin A Content of Pasture Plants, III*
138 *Vitamin A Content of Pasture Plants, IV*

The above list may be supplemented by the United States Department of Agriculture publications on dairying and related subjects. These are also available through the Idaho Agricultural Experiment Station or Agricultural Extension Division.

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